



Environmental Health Summit

November 13, 2018





The Sierra Fund's Mission



*“To restore
ecosystem and
community
resiliency in the
Sierra Nevada
region.”*

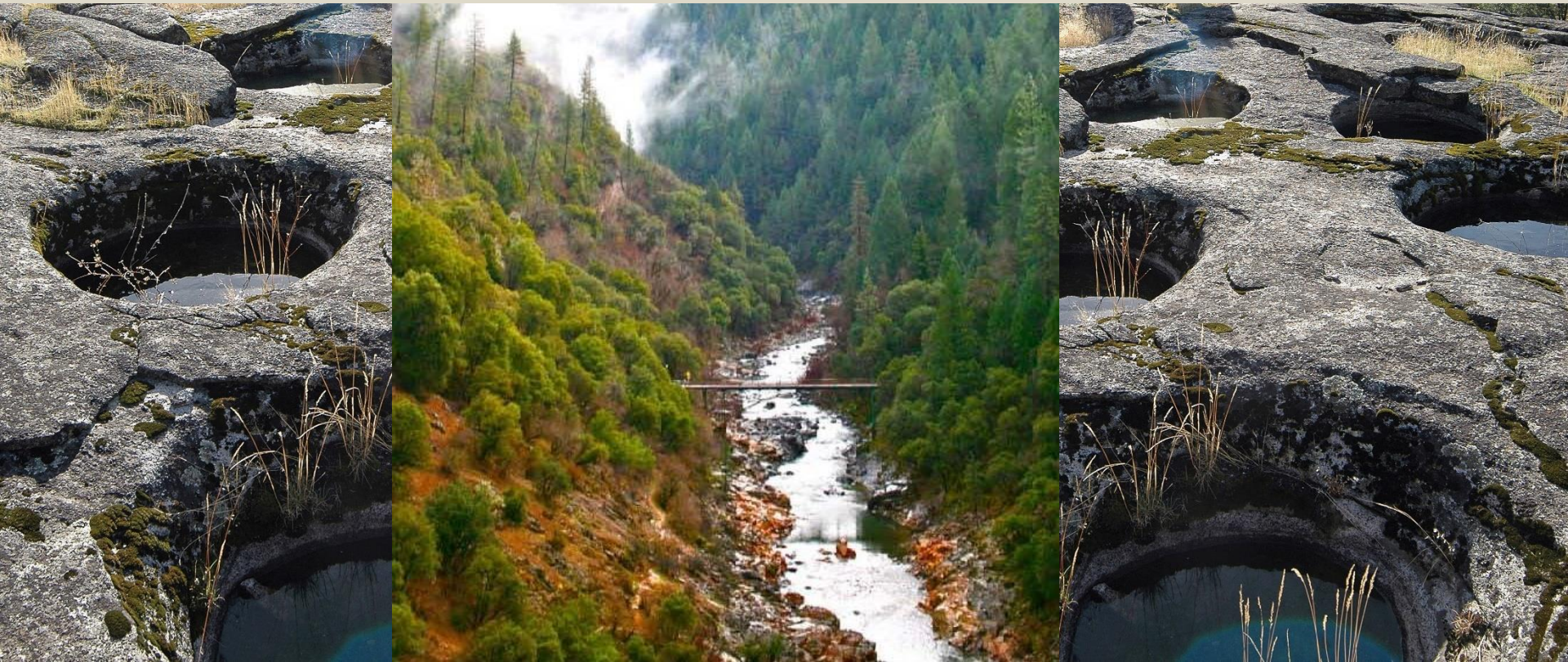


Historic Context

Impacts to Resiliency

The California Gold Rush

Mines | Meadows | Forests | Fish | People



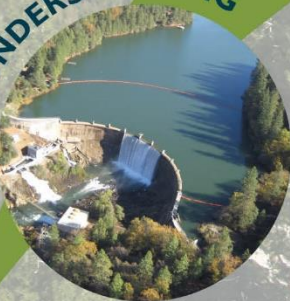


The Sierra Fund Strategy

Increasing investment in the Sierra Nevada improves headwater resiliency, to benefit all of California.

RESILIENCY

360° UNDERSTANDING



**Gold Rush Impacts
on Forests, Rivers,
Fish, Meadows
& People**

ENGAGE PROBLEM SOLVERS



**Interdisciplinary
Working Groups**

EXPLORE SOLUTIONS



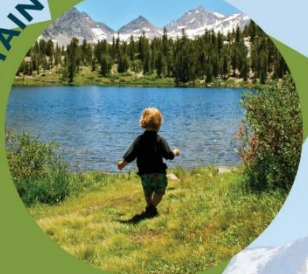
**Pilot
Projects**

KNOW BETTER, DO BETTER



**Best Practices
& Policies**

SUSTAIN THE CHANGE



**Restored Resiliency:
Healthy Land
& Healthy
Communities**

INVESTMENT

*“Dollar for dollar,
The Sierra Fund is the most effective
organization working in and
for the Sierra today.”*

Adrienne Alvord, Western States Director
Union of Concerned Scientists



Our Programs

1. Ecosystem Resiliency
2. Environmentally Healthy Communities
3. Capacity Building





Mercury in Fish

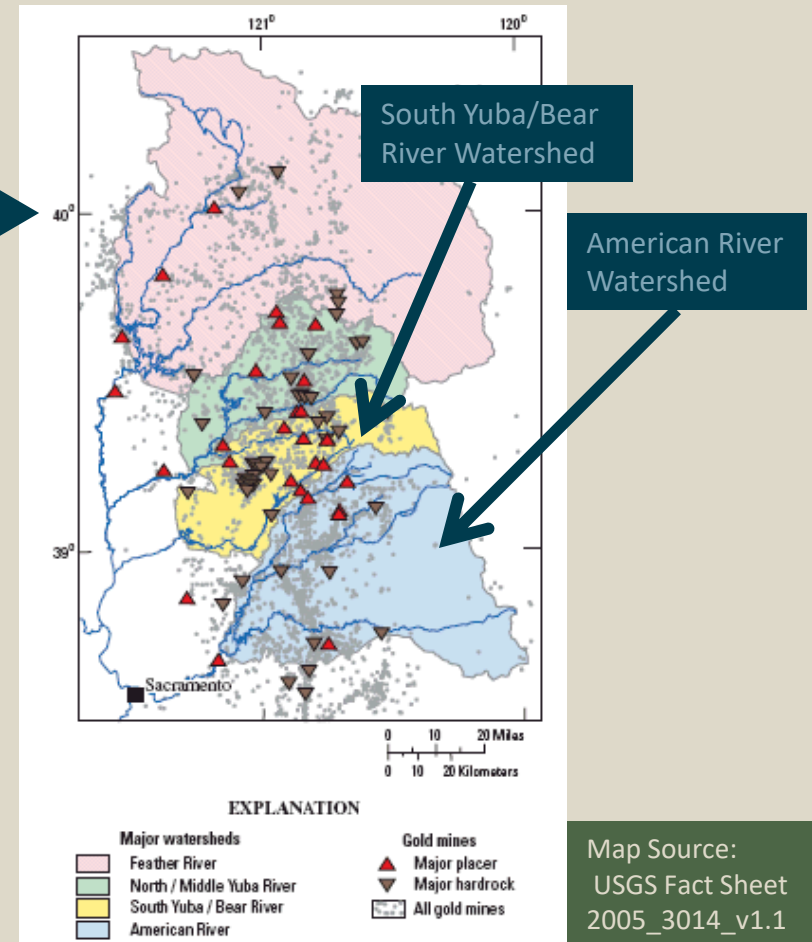
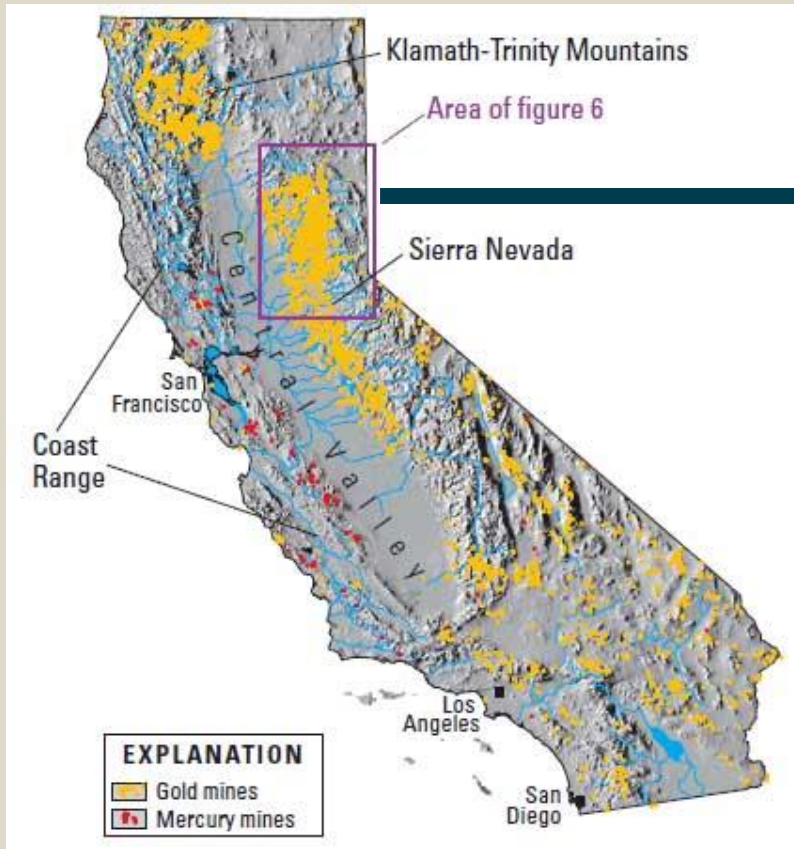
How to make safe local fish consumption choices...





Where does mercury come from?

Gold Rush Era Impacts...



Map Source:
USGS Fact Sheet
2005_3014_v1.1

Mercury Import + Use = Contaminated Watersheds



How much mercury is there?



The main source of mercury in California water bodies past gold and mercury mining activities.

During the Gold Rush:

26 million pounds used

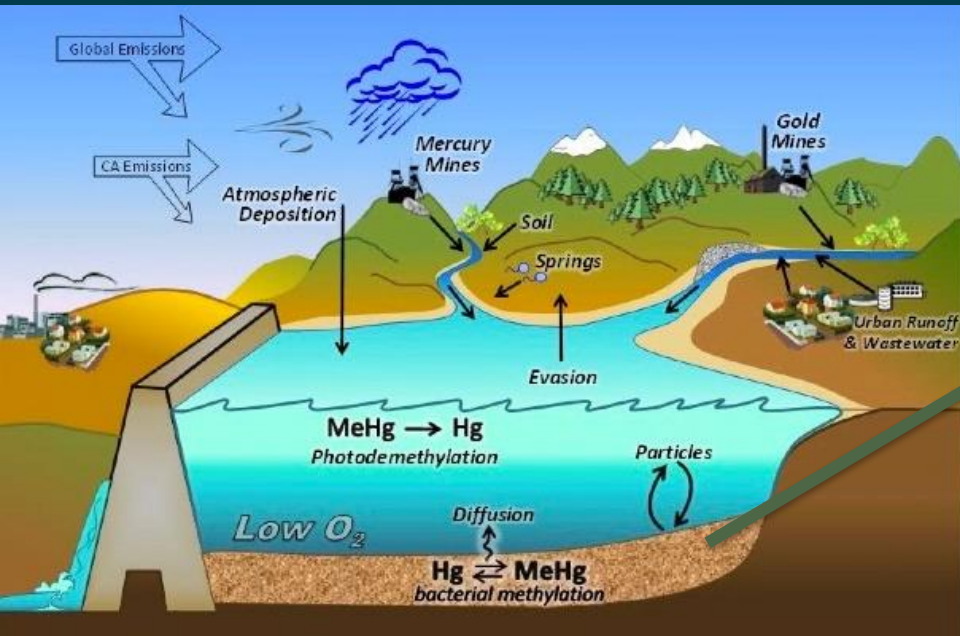
10 -13 million pounds LOST

The main way humans are exposed to mercury is the consumption of contaminated fish.



How does mercury get into fish?

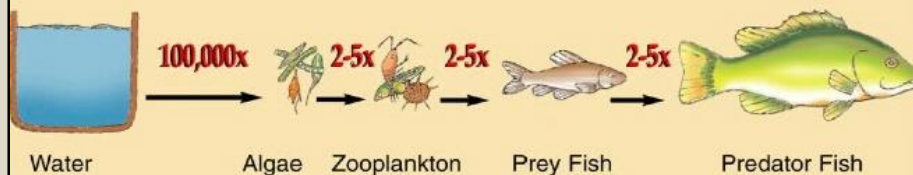
Methylation, Biomagnification, & Bioaccumulation



Low oxygen conditions =
increased methylation
potential

Biomagnification
factor at each
increase in
trophic level

Example Magnification Per Step



Bioaccumulation:
Live long. Eat lots.



What we have learned...

Gold Country Angler Survey

- People are eating locally caught fish and feeding it to their families.

Sierra Fish Tissue Study

- Many water bodies do not have the data for site-specific fish consumption advisories.

Post It Day

- Waterbodies are not posted with consumption advisories and no one is required to do so.





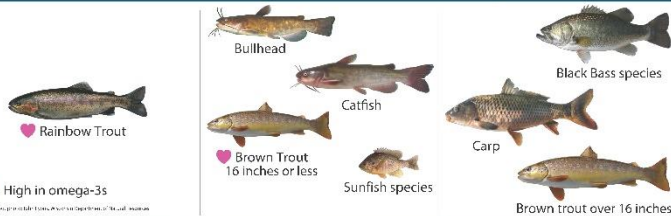
What you can do to protect your health...

NOTICE TO SIERRA ANGLERS

A healthy guide to eating fish from California lakes and reservoirs

This information applies to all lakes and reservoirs in California without site-specific advice.

Women 18 - 45 years and children 1 - 17 years



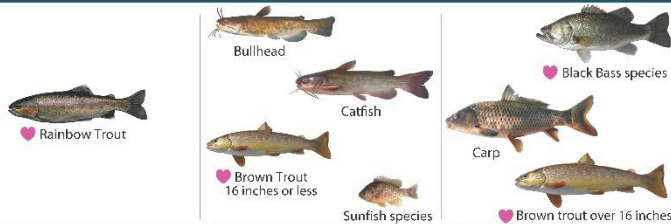
Population Group

Species

Frequency of Consumption

2 total servings a week OR 1 total serving a week OR Do not eat

Women 46 years and older and men 18 years and older can safely eat more fish



6 total servings a week OR 2 total servings a week OR 1 total serving a week

What is a serving?



For Adults For Children
The recommended serving of fish is about the size and thickness of your hand for fillets. Give children smaller servings.

Why eat fish?

Eating fish is good for your health. Fish have omega-3s that can reduce your risk for heart disease and improve how the brain develops in unborn babies and children.

What is the concern?

Some fish have high levels of mercury. Mercury can harm the brain, especially in unborn babies and children. Women 46 years and older and men 18 years and older have lower risk and can eat more fish.

Many California lakes and reservoirs in the Sierra have site-specific guidelines for eating fish. For site-specific information about eating fish from these and other California locations, visit: www.oehha.ca.gov/fish.



*Know which species of fish are safe
to consume from where, by whom...*

Visit

<https://oehha.ca.gov/fish/advisories>



Dusty Recreation on Mine-Scarred Lands





Dust and the Gold Rush

- Unique geology in Sierra Nevada
- Rock crushed in mills
- Tons of waste rock spread over large areas



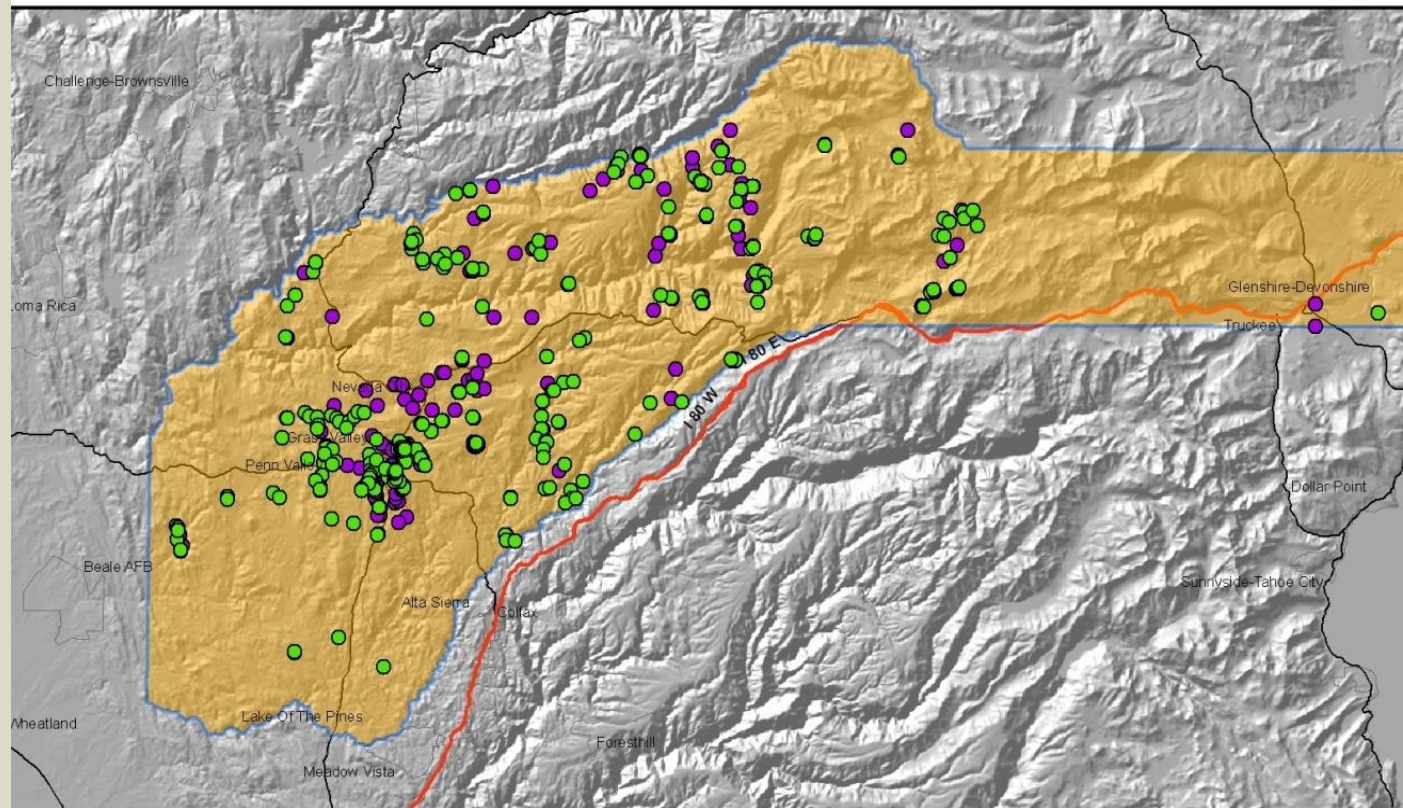


The Problem

- Recreation creates dust
- Trails go through abandoned mines
 - Hiking
 - Mountain biking
 - Horse back riding
 - OHV



DEPARTMENT OF TOXIC SUBSTANCES CONTROL NEVADA COUNTY MINES AND MINING FEATURES



Legend

- Nevada County: 332 Mine Features from Topographic Occurring Mine Symbols (TOMS)
- Nevada County: 155 Mines from Principle Areas of Mine Pollution (PAMP)
- Nevada County





What Has Been Done

- TSF Trails Report
- Stay Out, Stay Alive!



GOLD COUNTRY RECREATIONAL TRAILS AND ABANDONED MINES ASSESSMENT



*A Pilot Study to Assess Exposure Potential to Toxins from Mine Waste
and Naturally Occurring Hazardous Substances*

June 2010





Resources

The Sierra Fund (TSF) Website

www.sierrafund.org

Mine Safety and Health Administration (MSHA)

www.msha.gov/sosa

Department of Toxic Substances Control (DTSC) EnviroStor

www.envirostor.dtsc.ca.gov/public

CA Department of Conservation (DOC) PAMP/TOMS

www.maps.conservation.ca.gov/dmr

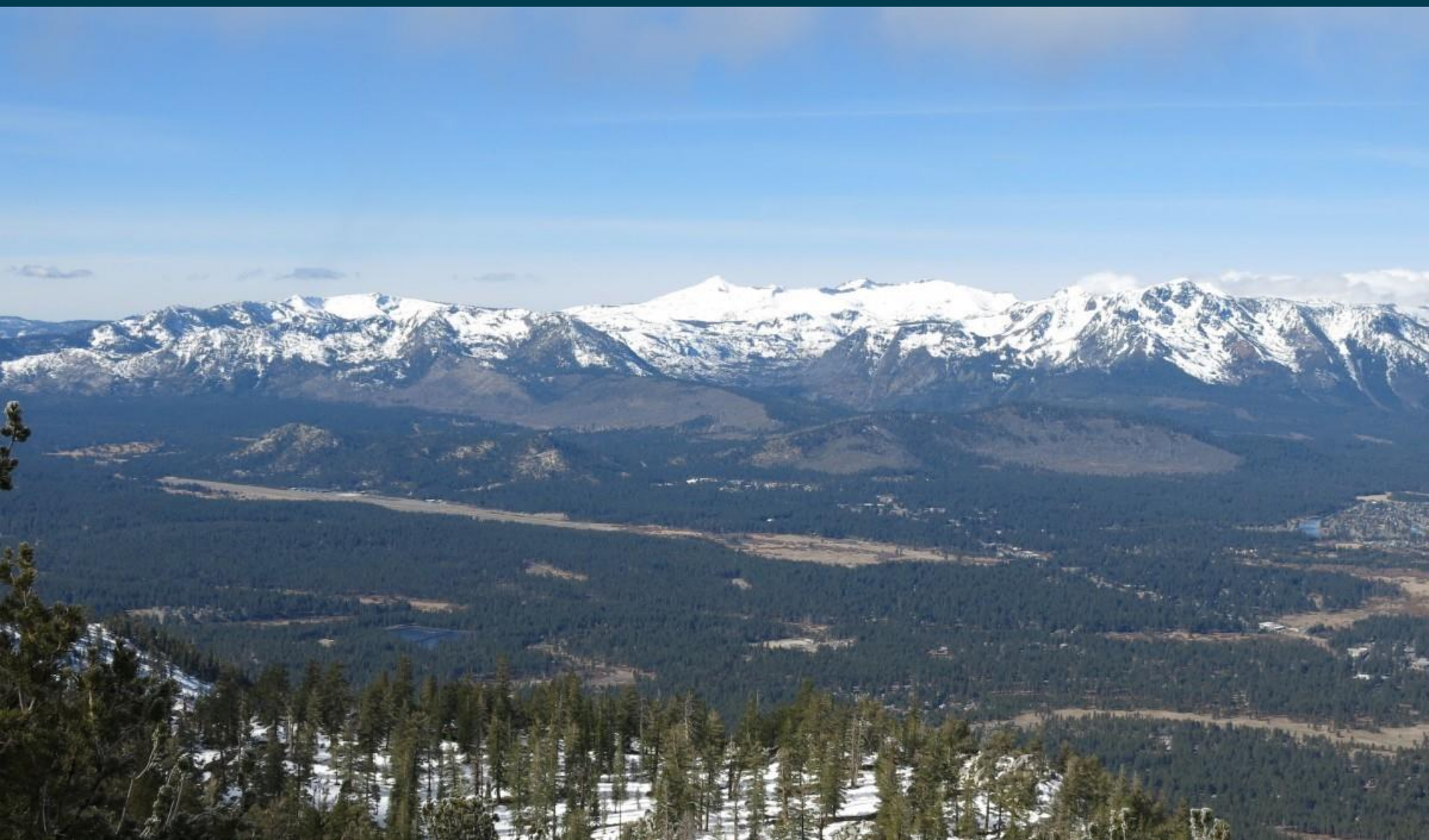
EPA Brownfields & Land Revitalization Program

www.epa.gov/brownfields





Water Quality and Water Access





What Happens with Water?





A Legacy of Water



National Flume, Nevada County, 1871

Photograph courtesy of CarltonWatkins.org



Infrastructure Interactions



Mine Drainage



Conveyance



Storm Water



Many Water Users

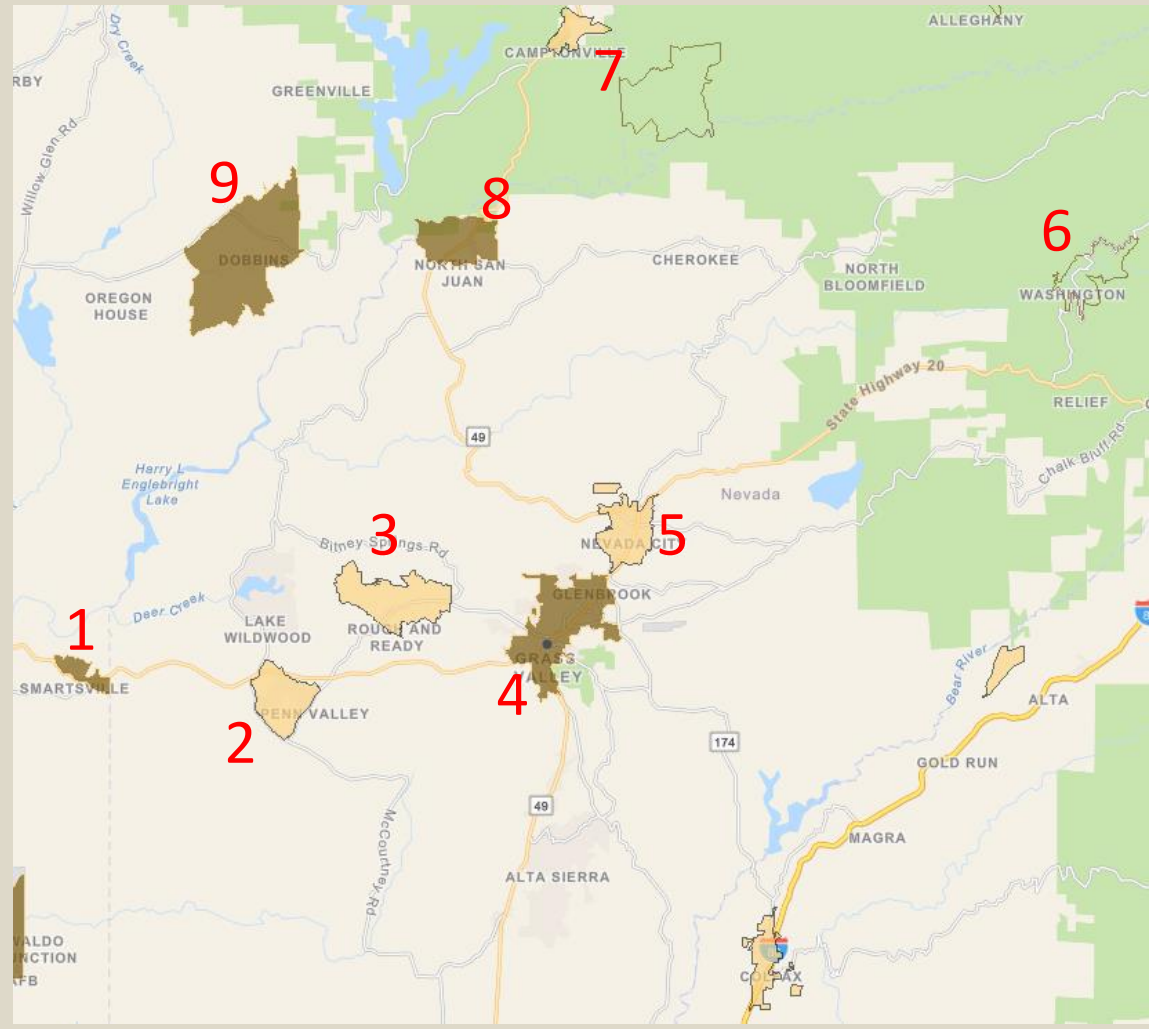




DACs-R-Us

Regional Map of Disadvantaged Communities

1. Smartsville
2. Penn Valley
3. Rough and Ready
4. Grass Valley
5. Nevada City
6. Washington
7. Camptonville
8. North San Juan
9. Dobbins





What Can You Do?

Get involved in water decision-making.

NID Raw Water Master Plan

Participation in CABY

Community Water Assessments

Community Capacity Workshops



Wildfire and Air Quality



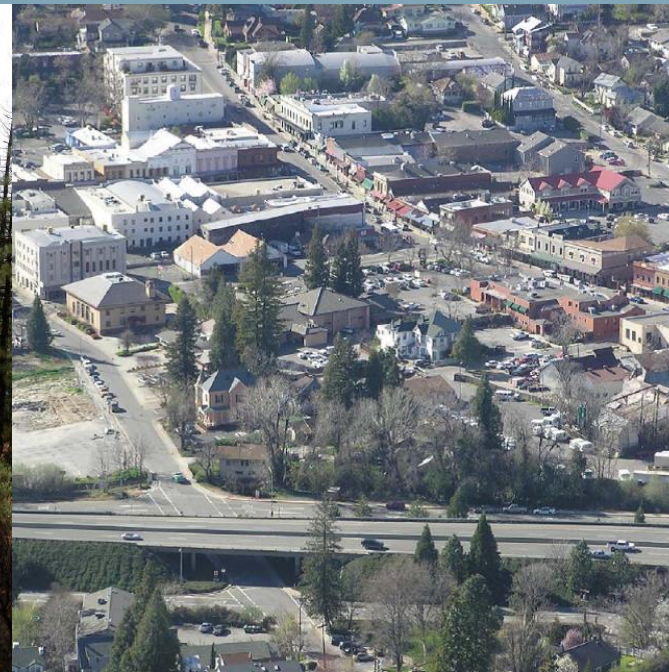


Forests Shaped by Gold Rush

Forests clear-cut to build towns & timber mines

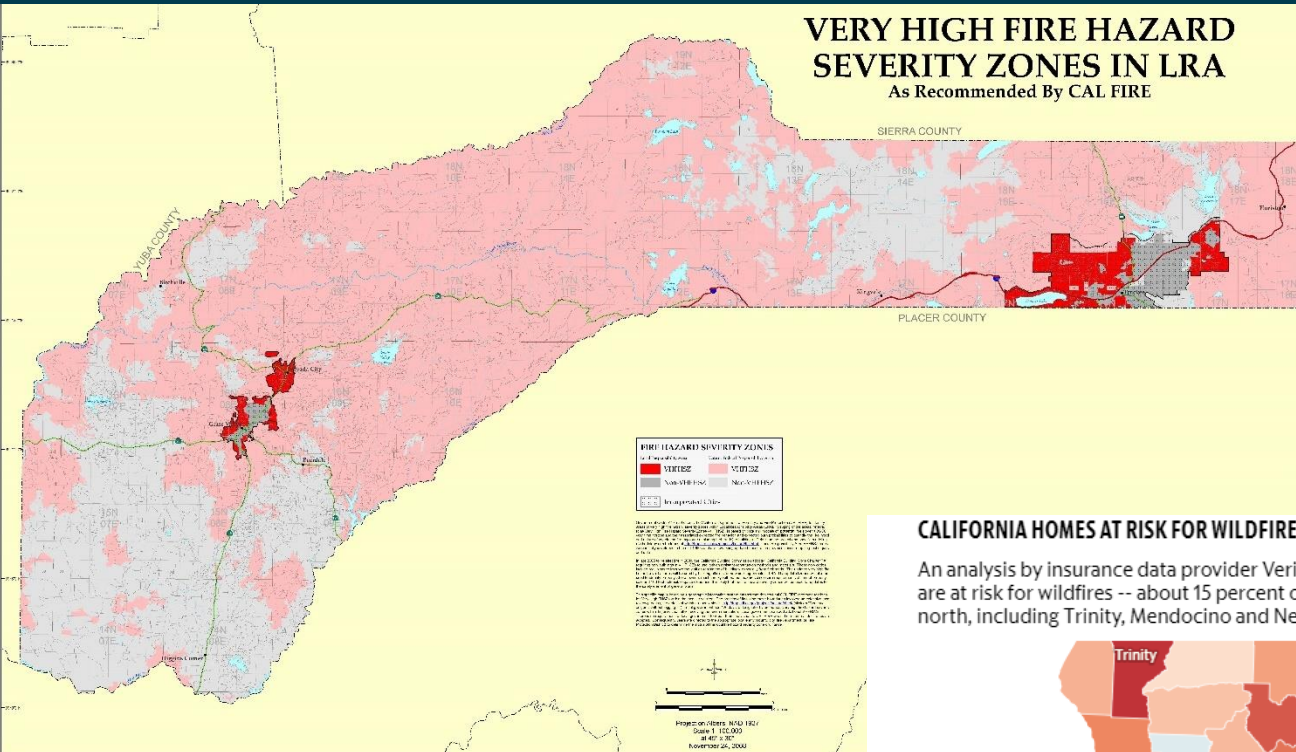
Fire suppressed for 100+ years

Towns grew up in the “wildland urban interface” (WUI)





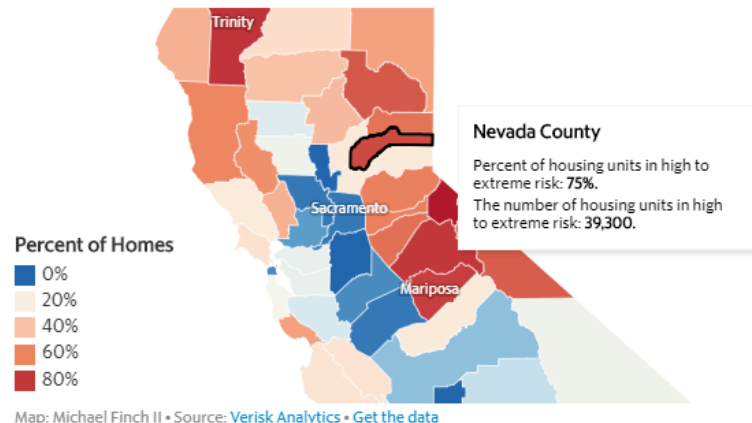
High Fire Risk



Nevada County
covered in Very High
Fire Hazard Severity
Zones

CALIFORNIA HOMES AT RISK FOR WILDFIRES

An analysis by insurance data provider Verisk Analytics found that more than 2 million homes in California are at risk for wildfires -- about 15 percent of all homes in the state. The riskiest places were usually in the north, including Trinity, Mendocino and Nevada counties.



75% of homes in the County are
in high to extreme risk areas



Wildfire Damage



Loss of Life & Property

Destruction of Infrastructure

Massive Clean Up Costs





Health Impacts of Smoke

Particulate matter can impact lung function
Respiratory issues flare up: asthma, COPD
Uptick in emergency room visits, prescription inhalers
Prolonged exposure can cause lasting effects



CA fires from space, 2018



Taking Action

1. Protect your Home & Family:

Clear defensible space around your home

Have “Go Bag” and Evacuation Route Ready

Sign up for CodeRED – Nevada County emergency alerts

2. During Fire Events:

Limit outdoor activity

Sensitive populations need access to clean air spaces

3. Planning and Policy:

Direct growth to the city and out of the WUI

Prioritize fuels management around populated areas



Resources

Code Red:

<https://public.coderedweb.com/CNE/en-US/CA8B57E20D17>

Nevada County Fire Safe Council:

<http://www.areyoufiresafe.com/>

Northern Sierra Air Quality Management District:

<http://myairdistrict.com/>

YubaNet:

www.yubanet.com

The Sierra Fund: www.sierrafund.org



Contact Us!

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